

## CLAIMS

What is claimed is:

5           1.     A computer-implemented method for troubleshooting a problem associated with a cellular network site, comprising the steps of:

          receiving a symptom input describing the symptoms of the problem;

          determining whether at least one of a plurality of rules is invoked by the symptom input, wherein the plurality of rules comprise a plurality of if-then statements; and

10          if so, then outputting a potential solution to the problem wherein the potential solution is determined by the invoked rule.

          2.     The method of claim 1 wherein the plurality of if-then statements comprise a plurality of if portions and a plurality of then portions; and wherein the step of  
15   determining whether at least one of a plurality of rules is invoked by the symptom input comprises determining whether the symptom input matches one of the plurality of if portions; and if so, then determining that the rule associated with the matched if portion is invoked.

20          3.     The method of claim 2 wherein the step of outputting a potential solution to the problem comprises outputting the then portion of the invoked rule.

          4.     The method of claim 3 wherein the step of outputting a potential solution to the problem comprises displaying the potential solution in a user interface of a  
25   computing device.

5. The method of claim 1 further comprising the step of receiving a facts input describing relevant facts regarding the cellular network and wherein the step of determining whether at least one of a plurality of rules is invoked by the symptom input further comprises determining whether at least one of a plurality of rules is invoked by the symptom input and the facts input.

6. The method of claim 1 further comprising the step that if a rule is not invoked, then adding the symptom input to a provisional rules list.

7. The method of claim 6 further comprising the steps:  
receiving a potential solution input; and  
adding the symptom input and potential solution input as one of the plurality of rules stored in a knowledge database.

8. A computer-readable medium having computer-executable instructions for performing the steps recited in claim 7.

9. The method of claim 5 further comprising the steps:  
receiving an indication input indicating whether the potential solution was successful;  
if the indication input indicates that the potential solution was not successful, then adding the symptom input and facts input to a provisional rules list.

10. The method of claim 9 further comprising the steps:  
receiving a potential solution input; and  
adding the symptom input and potential solution input as one of the plurality of rules stored in a knowledge database.

11. An expert system for troubleshooting a problem in a cellular network site, the expert system comprising:

a user interface for transmitting and receiving data to and from the expert system;

an inference engine connected to the user interface, wherein the inference engine  
5 receives data from the user interface and transmits data to the user interface;

a knowledge database connected to the inference engine, wherein the knowledge database comprises a plurality of rules used to provide potential solutions to the problem; and

a domain database, wherein the domain database comprises a plurality of facts  
10 regarding the cellular network site.

12. The expert system of claim 11 further comprising a provisional rules list comprising problem inputs that have not resulted in any potential solutions.

13. The expert system of claim 11 wherein the plurality of rules comprise a plurality of if-then statements wherein the if portion corresponds to the problem and the then portion corresponds to a potential solution.  
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14. The expert system of claim 11 wherein the knowledge database is populated with the plurality of rules using a knowledge acquisition facility (KAF), wherein the KAF comprises a software application for interviewing cellular network site engineers.  
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15. The expert system of claim 14 wherein the KAF formulates a plurality of if-then statements from the interviews with the cellular network site engineers wherein the plurality of if-then statements are stored as the plurality of rules in the knowledge database.  
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